

REMARKS

By this amendment, claim 10 has been amended. Accordingly, claims 1, 3, 4, 6, 7, 9-20, 22, and 23 are currently pending in the application, of which claims 1, 10, 17, and 20 are independent claims. Applicants appreciate the indication that claims 10, 12, 14, 16, and 23 contain allowable subject matter and the indication that claim 20 is allowed.

Applicants respectfully submit that the above amendments do not add new matter to the application and are fully supported by the specification.

In view of the above amendments and the following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

Claim Objection

In the Office Action, claims 10, 12, 14, 16, and 23 were objected to because of an informality.

Claim 10 has been amended for correction. This amendment is not made for the purpose of avoiding prior art or narrowing the claimed invention, and no change in claim scope is intended. Therefore, Applicants do not intend to relinquish any subject matter by this amendment. Applicants respectfully submit that claim 10, as amended, overcomes the stated objection. Accordingly, Applicants respectfully request withdrawal of the objection for claims 10, 12, 14, 16, and 23.

Rejections Under 35 U.S.C. § 102

Claims 17 and 18 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6890674 issued to Beckmann, *et al.* ("Beckmann"). Applicants respectfully traverse this rejection for at least the following reasons.

In order for a rejection under 35 U.S.C. § 102(e) to be proper, a single reference must disclose every claimed feature. To be patentable, a claim need only recite a single novel feature that is not disclosed in the cited reference. Thus, the failure of a cited reference to disclose one or more claimed features renders the 35 U.S.C. § 102(e) rejection improper.

Claim 17 recites, *inter alia*:

wherein the electrical signal is determined based on a variable input *consisting of* the concentration of the fuel and the volume of the sensor film (emphasis added)

Despite the Office Action's assertions to the contrary, Beckmann fails to disclose at least these features. According to claim 17, the electrical signal is determined based on a variable input that consists of:

- (1) the concentration of the fuel, and
- (2) the volume of the sensor film.

Under MPEP § 2111.03, “[t]he transitional phrase “consisting of” excludes any element, step, or ingredient not specified in the claim” (citation omitted). In other words, according to claim 17, a variable input of only the concentration of the fuel and the volume of the sensor film is used to determine the electrical signal. Beckmann's device does not teach this. To the contrary, Beckmann's device provides a signal based on a variable input of:

- (1) the concentration of methanol in a methanol solution,
- (2) the expansion of Nafion, and
- (3) the resistance of a conductor fastened to the Nafion (col. 8, lines 37-60).

In fact, Beckmann's disclosed system would not be able to determine the methanol concentration without the third variable input (i.e., the resistance of the conductor fastened to the Nafion) because without the third variable input, there would be no variation in the electrical signal in response to the expansion of the Nafion. Consequently, Beckmann can not possibly

be relied upon to teach that "the electrical signal is determined based on a variable input consisting of the concentration of the fuel and the volume of the sensor film."

The Office Action asserts that "since the signal is dependent on the volume, which is related to the concentration, the signal of Beckmann et al. is based on (consists of) the input parameters of both volume of the sensor film and concentration of the film [sic]" (page 8). Applicants disagree. Although claim terms are given their broadest reasonable interpretation, that interpretation must be consistent with the specification, and it "*must also be consistent with the interpretation that those skilled in the art would reach.*" MPEP § 2111 (emphasis added). A person of ordinary skill in the art would not interpret the phrase "consisting of" to mean "based on," as the Office Action suggests. As noted above, the transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. MPEP § 2111.03. The Office Action's interpretation is an unreasonable and unfair reading of claim 17. Beckmann fails to disclose that "the electrical signal is determined based on a variable input consisting of the concentration of the fuel and the volume of the sensor film."

Hence, for at least the reasons noted above, Beckmann fails to disclose or suggest every feature of claim 17.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 102 rejection of claim 17. Claims 18 and 19 depend from claim 17 and are allowable at least for this reason. Since none of the other prior art of record discloses or suggests all the features of the claimed invention, Applicants respectfully submit that independent claim 17, and all the claims that depend therefrom, are allowable.

Rejections Under 35 U.S.C. § 103

Claims 1, 3-4, 6-7, 9, 11, 13, 15, and 21-22 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,303,244 issued to Surampudi, et al. ("Surampudi") in view of Beckmann.

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c) resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. I, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. ___, slip op. at 14-15 (2007). Furthermore, even if the prior art may be combined, the combination must disclose or suggest all of the claim limitations. See *in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Assuming *arguendo* that the prior art elements could be combined, the combined prior art elements do not disclose or suggest every claimed feature.

Claim 1 recites, *inter alia*:

wherein the signal is determined based on a variable input *consisting of* the concentration of the fuel and the volume of the sensor film (emphasis added)

As noted above with regard to claim 17, Beckmann fails to teach or suggest at least this feature. Surampudi fails to cure this deficiency of Beckmann. Therefore, for at least this reason, Surampudi in view of Beckmann fails to teach each and every feature of claim 1.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 1. Claims 3, 4, 6, 7, and 9-16 depend from claim 1 and are allowable at least

for this reason. Since none of the other prior art of record, whether taken alone or in any combination, discloses or suggests all the features of the claimed invention, Applicants respectfully submit that independent claim 1, and all the claims that depend therefrom, are allowable.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Beckmann in view of Surampudi.

Applicants respectfully submit that claim 17 is allowable over Beckmann and Surampudi fails to cure the deficiencies of Beckmann noted above with regard to claim 17. Hence, claim 19 is allowable at least because it depends from an allowable claim 17.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 19. Since none of the other prior art of record, whether taken alone or in any combination, discloses or suggests all the features of the claimed invention, Applicants respectfully submit that claim 19 is allowable.

Allowable Subject Matter

Applicants appreciate the indication that claims 10, 12, 14, 16, and 23 contain allowable subject matter.

Claim 10 has been amended. Applicants respectfully submit that claims 12, 14, 16, and 23 depend from an allowable base claim and are allowable at least for this reason. Accordingly, Applicants submit that claims 10, 12, 14, 16, and 23 are in condition for allowance.

Applicants appreciate the indication that claim 20 is allowed.

CONCLUSION

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

/hae-chan park/

Hae-Chan Park
Reg. No. 50,114

Date: October 13, 2008

CUSTOMER NUMBER: 58027
H.C. Park & Associates, PLC
8500 Leesburg Pike
Suite 7500
Vienna, VA 22182
Tel: 703-288-5105
Fax: 703-288-5139
HCP/YYK/hyl